DOCUMENT RESUME

ED 152 240 IR 005 631

AUTHOR Ingle, Henry T.
TITLE Technology and Educational Reform: The Case of El Salvador.
INSTITUTION Academy for Educational Development, Inc., Washington, D.C. Information Center on Instructional Technology.
PUB DATE Jan 74
NOTE 10p.
JOURNAL CIT Instructional Technology Report; Jan 1974

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Case Studies (Education); Cost Effectiveness; *Developing Nations; *Educational Development; Educational Improvement; Educational Technology; *Educational Television; Evaluation; *Instructional Technology; Junior High Schools
IDENTIFIERS El Salvador

ABSTRACT

The educational reform effort begun in 1968 in El Salvador is described in both English and Spanish. The first stage was aimed at alleviating the bottleneck in the school system at the junior high school level. Although the technology of instructional television was the most visible and highly publicized element of El Salvador's educational reform, it represented only one part of a fundamental and comprehensive change in the El Salvador school system. The reform's major components were new curricula, retrained teachers, student workbooks, teacher guides, and instructional television. Evaluation results showed increases in student learning and favorable student attitudes, but problems with teacher morale. Also discussed are cost issues and the future of the graduates of the reformed education system. (Author/STS)

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TECHNOLOGY AND EDUCATIONAL REFORM:

THE CASE OF EL SALVADOR

by

Henry T. Ingle

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Instructional Technology Report. January 1974

IR005631

INSTRUCTIONAL TECHNOLOGY REPORT

Technology and Educational Reform: The Case of El Salvador

By Henry T. Ingle

Smallest continental country in the Western hemisphere is the Central American country of El Salvador which is 150 by 75 miles or roughly 21,393 square kilometers. Its rapidly expanding population of 3-1/2 million people makes it the most densely populated country as well, with 400 inhabitants per square mile or 166 per square kilometer. Ninety-five percent of its available land area is presently under cultivation.

These are the demographic factors of major concern which in 1968 prompted the government of El Salvador to concentrate its efforts on improving its greatest single resource — its people.

A ready pool of middle-level trained manpower became the government's objective. With such a labor pool government planners felt industry and related commercial enterprises would be attracted to El Salvador and thus would help alleviate some of the socio-economic problems faced by the country's growing population. Education was viewed as a pre-requisite not only to such economic growth but also to social change; and educational reform became the cornerstone of El Salvador's development policy.

It is still too early to assess fully the wisdom of such a policy for El Salvador since only two groups of students have completed a full cycle of education under the new system. However, the Reform's inclusion of educational technology, primarily the use of instructional television, as one integral element of systematic change presents some interesting dimensions for consideration and comment.

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Dr. Henry T. Ingle spent 18 months in residence in El Salvador, from late 1971 to early 1973 as the last Field Research Director from the Institute for Communication Research at Stanford University. This article summarizes points of view presented by Dr. Ingle at a November 29, 1973 'mini-seminar' on the El Salvador Project, hosted by the Information Center.

Tecnologia y Reforma Educativa: El Caso de El Salvador

por Henry T. Ingle*

Para un mejor servicio a nuestros lectores de habla española, el Dr. Ingle ha resumido y traducido al castellano las ideas más sobresalientes de su artículo, "Technology and Educational Reform: The Case of El Salvador," el cual aparece a la par de este resumen. El Centro está experimentando con este nuevo formato de resumir artículos en otro idioma con la esperanza de que la información le sea más útil a nuestros lectores. Les rogamos avisarnos si les parece útil y continuaremos haciendo lo mismo, no solo en español pero a veces en francés, seleccionando esos artículos de carácter más importante.

En este artículo se trata de poner en perspectiva algunos aspectos del proyecto de Reforma Educativa de El Salvador y presentar algunas posible implicaciones que éste tiene para otros paises.

Se da a conocer que desde el año 1968, El Salvador ha concentrado la gran mayoría de sus esfuerzos para poner en marcha un programa de reforma educacional. Este fue impulsado ante grave problemas de carácter socio-económico que El Salvador enfrentaba debido a su creciente concentración de población, escasos recursos, una gran masa sin escolarizar y el hecho de que la mayor parte de su tierra ya estaba bajo cultivo agrícola. Así es que se tenía que impulsar el desarrollo del país en otros sectores. Por esta razón se le planteó la necesidad imperiosa a El Salvador de mejorar su único recurso mayor — su población.

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**Desde 1971 hasta 1973, el Dr. Henry T. Ingle estuvo en residencia en El Salvador colaborando con personal salvadoreña, y encargado del Cuerpo de Investigación de la Universidad de Stanford, evaluando el uso de la televisión educativa. Esta investigación fue dirigida por el Dr. Wilbur Schramm en colaboración con el Dr. Emile McAnany, el Dr. John Mayo y el Dr. Robert Hornik. Este artículo está basado en el trabajo de investigación que éstos realizaron y también resume ideas presentadas en un pequeño seminario sobre el proyecto de Reforma Educativa en El Salvador que presentó el Dr. Ingle el 29 de noviembre de 1973 en las oficinas del Information Center en Washington, D.C. El personal salvadoreño que principalmente participó en la investigación son: El Lic. Luis Fernando Valero Iglesias, la Lic. Ana María Merino de Manzano y los Profesores Germán Rodriguez, José Ramiro Velasco y Victor Zelada. La asesora brasileña, Dra. Thereza Penna-Firme, también prestó valiosa ayuda.*

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Educational Reform in El Salvador

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Background on the Reform

As is the case with most developing countries, El Salvador faced difficult problems within its educational system. These problems included a high rate of illiteracy; a high rate of student desertion or dropout in the first years of primary school; an outdated, 'bookish', academically-oriented curriculum; and more than 75 percent of its teachers either professionally untrained or poorly trained. Only about 15 percent of all children who entered the first grade ever reached the seventh grade, and those students required an average of 21.3 years (principally in the rural areas) to complete the first six years of primary education.

While calling for reform at all levels of the school system, El Salvador's leaders felt that the problems at the junior high school level (grades seven to nine) warranted the most immediate attention. It was at this level where the lack of opportunity (e.g., fewer than 35 percent of students in the sixth grade in 1968 continued into the following year) and the low quality of instruction by poorly trained teachers had produced a major bottleneck in the school system. Through reform at this level the first pool of manpower would be available for technical career specialization within a short three year period. Therefore, the Reform, and principally the technology of television, was introduced on a pilot-basis to about 32 7th grade classrooms in 1969 and expanded yearly so that by 1973 virtually all 7th, 8th and 9th grade classes in the country, more than 65 thousand students, were totally immersed in the Reform and receiving televised instruction.

In 1966, before the Reform began, there were fewer than 22 thousand students enrolled in public 7th, 8th and 9th grades. These students plus some 23 thousand private school enrollees constituted only 22 percent of the young people of appropriate ages (13-15) for the three grades. By 1973, more than 65,000 students were enrolled in public junior high schools. Counting an additional 26,000 private school students, the seventh through ninth grade matriculation was 34 percent of the total number of 13-15 year olds. Students from poorer and rural homes coming to junior high school for the first time and an increasing proportion of girls who previously stayed at home accounted for much of the increasing enrollment.

Elements of the Reform

Although the technology of instructional television (ITV) was perhaps the most visible and highly publicized element of El Salvador's educational reform, it represented but one part of a more fundamental and comprehensive program of change which affected nearly every aspect of the elementary and secondary school system of El Salvador.

The extensive Reform was undertaken with help from the U.S. Agency for International Development (USAID) and other international assistance agencies in addition to

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Reforma Educativa de El Salvador

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Para este proposito la educación fue vista como un requisito premordial, y reforma educativa fue el elemento fundamental de la política para el desarrollo de El Salvador.

Elementos de la Reforma

Esta reforma se apoyó en cuatro grandes pilares:

1) una revisión y cambio total de los programas de estudio;

2) la extensa preparación y capacitación de maestros en nuevos métodos de enseñanza y el uso de tecnología educativa;

3) la introducción de la televisión educativa (TVE); y

4) la impresión de libros textos de trabajo para los alumnos y guías didácticas con material de apoyo para el mejor uso de la televisión por los maestros.

La Reforma se introdujo al Tercer Ciclo en los grados 7, 8, y 9 — empezando con un programa piloto en unas 32 aulas de 7º grado.

A la par de estos cambios fundamentales, el Ministerio de Educación fue reestructurado y su proceso administrativo modernizado. También se introdujo un nuevo sistema de promoción para reducir la gran deserción escolar y así establecer un nuevo, más relevante criterio de calificar el comportamiento escolar estudiantil.

A la vez se estableció un sistema continuo de evaluación del proyecto en colaboración con la Universidad de Stanford, cuya meta fue la de proporcionar "retroinformación" sobre los nuevos cambios a los dirigentes del proyecto. Esto permitió que reajustes y modificaciones necesarias pudiesen hacerse simultaneamente a la vez que el proyecto marchaba. También, la evaluación proporcionó datos importantísimos para planificadores de proyectos educativos en otros paises que tuviesen el mismo interés que El Salvador en modificar su sistema educativo por medio del uso de tecnología.

Entre las características mas sobresalientes del proyecto de El Salvador está el esfuerzo respecto a la revisión curricular para el sistema educativo total y el hecho de que a los profesores se les proporcionó un entrenamiento intensivo antes de enviarlos a prestar servicio en las aulas con televisión. Estos fueron llamados para estudiar a fondo, durante nueve meses, el contenido de los nuevos programas, los métodos de enseñanza con televisión y la utilización de la misma como un recurso audio-visual. Ningún otro proyecto de TVE ha puesto tanto interés en el re-entrenamiento de profesores para las aulas con televisión, como lo ha hecho el proyecto de El Salvador.

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a substantial Salvadoran commitment. Under the Reform, the curricula were completely revised and modernized; the Ministry bureaucracy and administrative structures were reorganized and centralized, and a planning office was established; a modernization of the system of school supervision was undertaken; and all teachers received a year's special retraining in their subject area and in the use of television while paid replacements taught their classes. Tuition was eliminated for grades seven to nine where the Reform initially was concentrated, and double sessions were instituted to handle the flood of new students. A liberalized student evaluation system established new, relevant criteria for student grading and promotion practices and decreased the numbers of repeaters.

As a major component, and as the catalyst for the rest of the Reform, television was introduced to carry the core of the curriculum. Each week in each of five subject areas (English, Math, Spanish, Social Science and Natural Science) from two to four twenty-minute programs were broadcast. Each ITV lesson was designed to be preceded by ten minutes of motivation conducted by the classroom teacher with twenty minutes of reinforcement activities after the viewing. To further enhance the effective utilization of the telelessons, each production team prepared printed classroom teacher guides and individual student workbooks.

Thus the Reform's major components were a *new curricula, retrained teachers, student workbooks* and *teacher guides*, and *instructional television*.

Role of Research-Evaluation Team

In order to assess the impact of the technological changes that were taking place a resident research-evaluation team from the Institute for Communication Research at Stanford University, working side-by-side with a cadre of Salvadoran counterparts, undertook to monitor the Reform, and in particular, the use of television. The research was funded by the Bureau for Technical Assistance of USAID, under the administrative auspices of the Academy for Educational Development.

The research data gathered by the evaluation team served the twofold purpose of:

a) providing feedback to the leaders of the Reform so that they could better understand what was happening and quickly readjust the system when necessary; and

b) providing important information to USAID and to planners in other countries with interest in the use of technology to improve education.

Stanford's participation in the evaluation of the El Salvador ITV system began in 1968 — six months before the Reform actually went into the classrooms — and ended in August 1973 with the publication of the last of 19 research reports.

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Así es que la televisión educativa en El Salvador fue introducida sólo como uno de varios elementos de un cambio amplio y fundamental del sistema educativo. Por medio de la televisión se intentó guiar a las escuelas en el uso de los nuevos programas de estudios, para hacer una excelente enseñanza más útil y a la vez extender la educación a un número más grande de alumnos.

Para 1973, más de 65,000 alumnos se habían matriculado en el Tercer Ciclo y junto con 26,000 otros de escuelas particulares recibieron sistematicamente instrucción televisada.

Resultados del Proyecto

Aunque tal vez sea un poco prematuro hablar del impacto total y de la efectividad de la Reforma Educativa salvadoreña, sí se pueden identificar algunos de los resultados hasta la fecha y ciertos aspectos del uso de la TVE.

1. *Aprendizaje.* Al comparar esos alumnos que fueron educados bajo el nuevo sistema de reforma y el uso de la TVE con esos que fueron educados bajo el sistema tradicional, así como los instruídos bajo el nuevo sistema *sin* la TVE, los resultados indican que los alumnos con TVE, más los otros elementos de la Reforma, aumentaron de 15 a 25% más en puntaje total que los otros dos grupos de alumnos, en la prueba de Habilidad General que se les administró cada año durante el período de la investigación. Esta prueba pretende medir habilidades de tipo cognositivo que perseveran en un individuo más allá de cualquier contenido ó materia que aprenda.

   Los alumnos instruídos bajo el uso de la TVE también obtuvieron mejor resultados en las pruebas de contenido para las materias de Matemáticas, Cicencias y Estudios Sociales. En las pruebas de Lectura, tanto los alumnos *con* y *sin* la TVE avanzaron a la misma medida.

2. *Actitudes.* En general, las actitudes de los alumnos, tanto como las de los profesores, hacia la TVE han sido favorables, pero a medida que la televisión se extendió de 7º a los grados de 8º y 9º, ambos la analizaron de una manera más realistica y encontraron algunas limitaciones. La TVE no era la panacea que muchos la creían ser, pero de todas maneras fue un agente catalítico que impulsó la reforma y le dió vida en un tiempo mínimo de cinco años.

   Evidentemente las actitudes críticas de los profesores eran dirigidas al Ministerio de Educación y la rapidez con que éste implementó los distintos aspectos de la Reforma. También hubo los problemas de sueldo, la creciente matrícula y un número más grande de alumnos

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The Reform, however, is on-going and has become institutionalized in El Salvador. In 1973 the Ministry of Education issued a new five-year educational plan which includes the extension of the use of television to the second cycle of the primary grades (4, 5, and 6), beginning with the fourth grade on a pilot basis; the use of TV for teacher in-service training at the primary grade level; and TV for programs directed to non-formal sectors of the educational system.

Results and Relevant Findings

While it is still premature to talk about the total impact and effectiveness of the Reform, the following paragraphs may serve to highlight the relevant findings and policy implications of the project as reflected during the period of the Stanford team's research work.

Student Learning: Students who studied with ITV and the other elements of the Educational Reform over a three year period gained from 15-25% more on the General Ability Examination administered by the research team than did their peers who studied under the traditional system, and others who studied with all elements of the Educational Reform except ITV.. Overall, ITV students also performed better on achievement tests in Mathematics, Social Studies and Natural Science, and particularly so in seventh grade. Reading capabilities of both ITV and non-ITV students advanced at about the same rate.

Student Attitudes: A majority of the students tested throughout the 4-1/2 years of Stanford's participation in the evaluation work were favorably predisposed toward ITV throughout the four years in which attitudes were surveyed, though high initial enthusiasm declined somewhat as students progressed from seventh through ninth grade. Disadvantaged children and children with low general ability were more favorably disposed toward the televised lessons than their more advantaged peers.

Reactions of the Classroom Teachers: Teachers' attitudes toward the television system fell slowly as the first rosy glow surrounding the new technology was overtaken by realism. Two major teachers' strikes within the initial years of the Reform symbolized the extraordinary strain that accompanied the introduction of the Educational Reform. Instructional television was not a major issue in those conflicts, and teacher attitudes toward it generally were positive. However, like the students, teachers were less enthusiastic after four years of experience with ITV than when it was first introduced.

Teacher attitudes toward their profession and their working conditions declined sharply after the second strike in 1971 when they were forced to accept larger classes, longer hours, and felt the pinch of the special requirements made on them by these great increases in enrollment, including teaching two complete shifts

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por aula, la escasez de recursos en el aula, y el menosprecio que los profesores sintieron hacia su trabajo y su profesión. Otra fuente de pesimismo fue el nuevo sistema de calificación y promoción de alumnos, que aunque bueno en concepto, causó mucha dificultad a los maestros en su aplicación y comprensión.

Hubo multiples causas, por lo tanto, que causó las poco favorables actitudes de los maestros, que los llevó a una huelga magisterial en 1971. Sin embargo, hay evidencia de la investigación sobre la Reforma, que el entrenamiento que recibieron los maestros les aumentó su confianza en si mismos y los impulsó a usar nuevos métodos de pedagogía.

3. *Costos.* En cuanto a los costos de la Reforma, el artículo nos da saber que la TVE fue un costo adicional para el sistema, puesto que se utilizó junto con maestros en el aula. No obstante, el costo total por alumno fue menos con la TVE que con el sistema tradicional, puesto que le dió acceso a la escuela a más alumnos. Este costo fue $47, comparado al costo de $52 por alumno si la TVE no se hubiese utilizado, la matrícula y el número total de alumnos por aula aumentado, y los maestros asignados a tomar doble turnos en las escuelas (un grupo de alumnos por la mañana y otro en la tarde). Se espera que con la extensión de la TVE a los grados 4º, 5º y 6º, el costo anual por alumno sea aproximadamente $17.

Alumnos Egrezados del Nuevo Sistema

En un estudio de seguimiento del primer grupo de alumnos egrezado del noveno grado, después de tres años de instrucción bajo la Reforma, los resultados indican que el 85% continuó estudiando al nivel de carerra técnicas en los Bachilleratos Diversificados. Sin embargo, la gran mayoría de éstos ingresó al Bachillerato Académico con la expectiva de cursar estudios universitarios y seguir una carrera profesional. Parece haber una urgente necesidad de proporcionar consultaría sistemática y orientación de carreras que puedan dirigir a los alumnos hacia programas alternativos de Bachillerato. También parece existir una necesidad de amplicación de las oportunidades de matrícula en los distintos Bachilleratos Diversificados de acuerdo con un análisis del mercado laboral.

El hecho de que muchos alumnos tuvieron que trasladarse a otros pueblos y ciudades para continuar sus estudios, sugiere un patrón de migración urbana, la cual podría afectar el desarrollo de las areas rurales y posteriormente agravar las condiciones de superpoblación de las areas urbanas.

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New Insights to Diffusion of Information

Everett Rogers has spent most of his career in the study of diffusion of innovations and is one of its foremost authorities. Dr. Rogers' first researching was on diffusion of agricultural innovations. Communication Strategies for Family Planning represents the evolution of his work in diffusion studies. While providing practical application for family planners, it is also relevant to all concerned with the problems of development. Dr. Rogers is currently Professor of Journalism and Population Planning at the University of Michigan.

In the last few years the population specialist, aficionados, some family planners and high government officials around the world have begun to realize that family planning programs are not effectively curbing population growth. One school of thought believes that rapid population growth cannot be solved by the well meaning, ineffectual contraceptivists; solutions will come with a comprehensive developmental approach — higher standards of living and rapid modernization of society. On the other hand, the "contraceptivist" school of thought believes that family planning programs can do the job if enough pills, condoms and IUDs are distributed and if more male and female sterilizations are performed because the masses of fertile couples really want to limit the number of their children.

Everett M. Rogers in his most recent book, *Communication Strategies for Family Planning*, graces neither school wholeheartedly. He agrees that family planning programs overall have had little success in bringing down fertility rates, but believes that these programs can have greater impact on fertility rates, "if communication strategies are incorporated in these programs." Yet, Rogers seems to concur with aspects of the "developmentalists" orthodoxy when he lends support to the notion of beyond-family-planning practices — a far-reaching set of non-medical policies designed to get citizens to limit their family size.

This book by Dr. Rogers is based on the conceptual notion of diffusion of innovation — a new idea, practice, or object is communicated by a number of channels over a period of time to others in a social system which results in a changed attitude and new form of behavior. Rogers modifies his diffusion model with the introduction of change agency aides (people who possess technical credibility and peer group credibility), diffuser incentives (both monetary and non-monetary), and verbal labeling of innovations (i.e. naming the condom in India as *Nirodh* from ancient Sanskrit and in Kenya as *Kinga* from the Swahili).

Taboo Communication

Family planning communication is defined as a process for "changing human behavior of fertility on a large-scale basis through the transfer of new ideas." As Rogers has learned, the job of the family planners is complicated by the "extremely private and personal nature of family planning." This phenomenon is labeled "taboo communication" by Rogers and he sees this as the biggest obstacle to reducing birth rates. Unfortunately, many professionals fail to recognize the taboo status of the situation.

The personal nature of family planning limits the effectiveness of mass media campaigns. Research shows that family planning messages received through mass media can only increase the audience's knowledge. To change attitudes or modify behavior Rogers argues that family planners must utilize interpersonal channels, especially with the assistance of change agent aides, incentives, and correct verbal labeling.

The major audience for family planners has been the female. Rogers presents ample evidence that the male plays a much bigger role in the innovation decision process than expected. In many cases, he makes the final decision. If programs are to achieve a greater degree of success, family planners will have to design messages aimed at males stressing the economic advantages of fewer children. Until now health benefits have been the message and females the audience.

An untapped resource of great importance to family planners is the commercial sector. Commercial resources can provide a family planner with a highly successful distribution system and proven organizational procedures. A family planning program can gain access to these distribution channels to reach family planning adopters as well as to borrow organizational procedures. As an example, India relied on market researchers and 6 commercial firms with country-wide distribution channels to help promote condoms. The condom was called Nirodh (this helped make it become less taboo) and it was distributed far and wide. The results were spectacular: in 3 years the number of Nirodhs sold increased by 460% and accounted for more than one-half of all contraceptive adopters.

Strategies

For communication strategy planners Rogers emphasizes the need to have specific objectives; presently there is a preponderance of general aims.

The strategies recommended are: use more resources than Health Ministry personnel to reach people and gain adopters, target males as well as females, account for the tabooness of family planning, do not rely too heavily on mass media, stress interpersonal channels more, be prepared to cope with potentially damaging rumor campaigns, and do not act as if there is a perfect contraceptive (there is not and will not be for this decade at least).

At times Rogers' book does not read smoothly, as if it were hastily put together. Some concepts are continually defined giving the reader the impression that not enough care was given to the book's totality. Nevertheless this point is minor in comparison to Rogers' research findings and their importance to planners and policy makers who must and should consider social science research when preparing a course of action. This book will be useful to anyone concerned with the notions of modernization. In particular those working in the area of nonformal education will find this book a valuable and useful resource.

Randall H. Casey

Everett M. Rogers, *Communication Strategies for Family Planning*, Free Press (Division of MacMillan Publishing Co., Inc.), 1973, 451 pages.

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of school each day. Problems other than the presence of instructional television or the basic ideas of the Reform were behind the teachers' depressed attitudes. There was the continuing problem of low salaries. There was also a general misunderstanding of the part played by the classroom teacher in the new system of student grading and promotion and a sense of being inadequately prepared to use such a system well. And along with all these factors were the not uncommon difficulties with administration: lack of communication and coordination with the Ministry, late arrival or shortage of materials, methods of assigning teachers to schools, etc. Obviously, there were multiple causes for the discouragement reflected in the teachers' attitudes. Nevertheless, there was some research evidence that the Reform, and particularly the year's retraining, produced teachers with greater self-confidence who were willing to make use of some of the techniques of modern teaching.

Costs of the Reform

The introduction of ITV and the Reform was accompanied by an increase in the number of students per class and an increase in teacher hours, with a less than proportional increase in teacher pay. This effectively lowered the cost per student of the classroom teacher. Thus, although ITV was an add-on cost, when enough students were enrolled the total per-student cost of classroom teaching plus television was actually lower than the cost would have been within the traditional system. In a year in which 60,000 students were using ITV, the per-student cost of ITV plus the classroom teacher was $47. This was lower than the $52 it would have been if ITV had not been used, class size not increased, and teacher load not enlarged. Using some rough enrollment estimates of the rate of expansion over the first 25 years of the project, the average yearly cost per student over that period should approximate $17.[2]

Future of the Reform's Graduates

Over 85 percent of the 1971 ninth grade graduates (the first to complete three full years under the Reform) were interviewed nine months after their graduation. The majority were continuing their studies at the high school level and most hoped to continue to the university level rather than enter the current labor market. Those not studying were planning to return to school as soon as they were able. This result conformed closely to the aspirations students expressed in a survey while they were still in junior high school. More than 90% of the students surveyed then wished to continue their studies beyond the ninth grade and approximately 50% hoped to obtain a University degree. These were very high aspirations, and they reflected the students' belief both that advance schooling was the key to success in El Salvador and that without it suitable employment, even if one had a ninth grade diploma, would be almost impossible to find.

Because most high schools are located in larger cities, almost 50% of all graduates had to commute or change residence in order to continue studying. This suggests an

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Implicaciones de la Experiencia Salvadoreña

El uso de la TVE en El Salvador subraya el hecho de que la tecnología educativa sólo es efectiva realmente cuando es implementada como una parte integral de otros cambios fundamentales del sistema educativo. Tal vez se puede decir que el efecto de la TVE en El Salvador no fue lo que ella, como un medio de comunicación, le ensenó a los alumnos en el aula, pero más bien el papel que desempeño como agente de cambio en los otros elementos del sistema educacional.

Al evaluar la experiencia salvadoreña, uno, sobretodo, tiene que preguntarse si los beneficios socio-económicos que El Salvador busca son los mismos que otros paises deben buscar. Es decir, El Salvador está tratando de desarrollar más mano de obra calificada a nivel técnico-medio para el comercio, la industria y la agricultura. Pero la creciente tasa de desempleo y la falta de suficientes trabajos al nivel técnico en el país, junto con las altas aspiraciones de los alumnos para estudios universitarios y carreras profesionales, pueden ser una serie de obstáculos en la realización de esta meta. No obstante, los planificadores de la Reforma salvadoreña creen que en el futuro, con el solo hecho de que haya una gran masa de gente bien educada, la economía se desarrollará lo suficiente para absorber un número más grande de gente en el sector laboral. Esto le daría más fuerza a la Reforma Educativa y la decisión de proveerle a cada individuo por lo menos nueve años de educación gratuita.

Otros paises en vías de desarrollo y deseando emular el use de la TVE que hizo El Salvador tal vez no estén tan dispuestos para asignar valiosos recursos educativos exclusivamente al sector de educatión formal, tal como el caso salvadoreño. Ciertamente, El Salvador ahora está explorando el uso de TVE para las grandes masas de su población afuera de la estructura formal del sistema educativo.

La manera por la cual El Salvador finalmente decida enfrentar esta nueva posibilidad para el uso de la televisión queda como una prueba aún más grande que la introducción de este medio al nivel de Tercer Ciclo. Según el leal saber del autor, aún con todas las limitaciones de la experiencia salvadoreña, hasta la fecha ningún otro país en condiciones semejantes ha entendido y tomado a conciencia tan bien el papel de la tecnologiá en un programa de reforma educativa.

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urban migration pattern with a flight of educated young people from the countryside to the cities which could adversely affect the development of rural areas and further aggravate overcrowded conditions in urban areas.

While many of these first graduates were able to find places in high school, it is unlikely that there will be sufficient space in the universities for all those who hope to attend. Nor, as ever larger numbers of students complete ninth grade, will there be sufficient places in high school for all of the junior high school graduates.

The findings of this "follow-up" study of the first graduates tentatively indicate that the Reform is, to some extent, achieving its objective of stimulating more students to move into the diversified technical careers at the high school Bachillerato Diversificado level. However, judging from the large number of students in the Bachillerato Académico (the most traditional of the technical careers which also leads to the University), there appears to be a need to provide systematic counseling and career guidance which can direct students to alternative Bachillerato programs. There also appears to be a need for broadening enrollment opportunities in the various Bachillerato Diversificados in accordance with an analysis of the labor market, because these young people are aspiring chiefly to higher education and professional careers rather than to the middle-level technical and business areas the planners of the Educational Reform had hoped to fill. El Salvador sought, through the Educational Reform, to develop more middle level manpower and prepare more young people for technical jobs in industry and agriculture. Yet, in 1972 relatively few technical jobs were available for graduates, and students were inclined to continue schooling rather than enter the job market. If the country's high unemployment rate continues and there is no economic expansion to match the large increase in school enrollments, students may be forced to reconsider the kinds of middle level jobs they currently consider unsuitable. Also, as the demand for employment increases, the jobs themselves may be reevaluated vis-a-vis the academic credentials necessary to hold them, and over time all but the lowest level positions may be held by ninth grade graduates.

While conceding that employment is likely to be a problem for students in the immediate future, Salvadoran planners believe that in the long run the economy will expand sufficiently to absorb them. By investing in education, El Salvador will create a labor pool of adequate size and quality to attract foreign investment which, in turn, will create new technical jobs. It should be emphasized, however, that the rationale for mounting such a comprehensive educational reform in El Salvador was not limited solely to the economic argument that it would help generate more jobs. The government had strong political and moral justifications. Above all, there was a belief that nine years of basic education should be the right of every child regardless of the costs of such a policy to the society as a whole.

Conclusions and Implications

El Salvador's broad perspective for the use of educational television is unique among the major projects of this type in the developing world. Salvadoran leaders saw ITV as something more than a relatively inexpensive substitute for well-trained teachers. They recognized that television, regardless of its quality, could not by itself bring about educational reform. However, while ITV was only one part of a package of major changes in the system, Salvadoran leaders and advisors closely associated with the project have agreed that those changes would not have occurred without the impetus of ITV. Television not only provided a climate which motivated change, but also served as a mechanism for speeding up the needed changes.

In addition, the use of television in El Salvador underscored the fact that educational technology is effective only when it is part of a fully implemented systems' change; otherwise, attached to a basically unchanged educational system, it remains a superficial symbol of modernization. Perhaps the most important effect of television in El Salvador was *not* how it, as a medium, taught students in the classroom, but how it functioned as an agent of change for an entire school system.

Other countries, burdened by economic problems and pressures for social change similar to those of El Salvador, and wishing to emulate the latter's successful application of ITV, may not be willing to allocate precious educational resources exclusively to formal education. Indeed, in the last year El Salvador has also turned its attention for the first time to the needs of its large out-of-school population. How El Salvador will use its ITV system to meet the diverse educational needs of this group remains a greater challenge than that which saw the introduction of ITV and the major system changes that took place at the junior high school level.

To the best of the author's knowledge, even with many of the limitations of the El Salvador experience, no other country under similar circumstances has understood so well the role of educational technology in a program of educational reform and has acted accordingly. In El Salvador, technology was seen, *not* as a panacea for all the ills of its educational system, but as one important element in a series of planned changes for the country's total educational development.

Footnotes

[1]The research was completed under the general supervision of Dr. Wilbur Schramm in co-operation with four staff members of the Institute for Communication Research during the years 1968-1973. The four staff members were: Dr. Emile G. McAnany, Dr. John Mayo, Dr. Robert Hornik, and Dr. Henry T. Ingle. Yolanda Rodriquez Ingle and Judy A. Mayo also were members of the team and conducted specialized studies.

[2]Cost data for the El Salvador project were collected by Dr. Richard Speagle and are the subject of a summary publication released by the Information Center and entitled *Educational Reform and Instructional Television in El Salvador: Costs, Benefits and Payoffs*. Dr. Dean Jamison of the Educational Testing Service, Princeton, New Jersey, also assisted in certain aspects of the final analysis of the El Salvador ITV cost data.

ACROSS THE DIRECTOR'S DESK..... some items of current interest:

A cooperative effort made by the Ministries of Health, Education, Agriculture and Cooperatives, the Prime Minister's Office, TANU (the governing party), and the Institute of Adult Education of the University of Dar es Salaam working with Radio Tanzania of the Ministry of Education resulted in a health and hygiene education program *Mtu Ni Afya* which is reaching more than its target of one million study group members.

Hugh Barrett reports in *Combroad*, the quarterly journal of the Commonwealth Broadcasting Conference, Oct-Dec 1973 issue, on health education by radio in Tanzania. He writes that, in addition to the twelve 1/2 hour radio programs themselves, radio played a major part in the recruitment of members and leaders of the 7 to 15-member study groups.

This same issue of *Combroad* also features a section on 1974 broadcasting training courses offered throughout the Commonwealth. For further information write *Combroad*, Broadcasting House, London W1A 1AA.

A study conducted for the purpose of providing developing countries with guidelines for the application of a systems approach to curriculum development and for establishing teacher-training programs has been completed by Professor Taher A. Razik of the State University of New York at Buffalo while serving as a consultant in 1969-70 to the International Institute for Educational Planning, UNESCO. This study is reported in the two-part volume *Systems Approach to Teacher Training and Curriculum Development:* the case of developing countries.

Dr. Razik has, in Part I, constructed an instructional model based on the systems approach and has outlined the administrative problems in the implementation of a management model for the above areas of activity. In Part II he presents a case study of Sudan, testing the applicability of his model. This volume, published in 1972, is available from IIEP, UNESCO (B. 2997) at U.S. $4.50, £1.35 (stg), 18F.

Instructional Technology Report, published bi-monthly, is the official newsletter of the Information Center on Instructional Technology. The Center serves as an international clearinghouse for materials and information on important developments in the use of technology for improving education around the world. The Center is operated by the Academy for Educational Development, a private non-profit organization, and is supported by the Bureau for Technical Assistance of the U.S. Agency for International Development.

Contents of this newsletter may be reproduced, provided that acknowledgment is made to *Instructional Technology Report*, Information Center on Instructional Technology, Washington, D.C.

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